PIPE JOINTS

The Standard Specifications are revised as follows:

SECTION 715, LINE 193, DELETE AND INSERT AS FOLLOWS:

~~Pipe~~ *Except for circular concrete pipe, pipe* joints designed to accommodate seals or pipe joints requiring seals shall be sealed with approved rubber type gaskets, caulking, bituminous mastic pipe joint sealer, elastomeric material, or sealing compound. *Circular concrete pipe joints shall utilize rubber type gaskets.*

SECTION 906, BEGIN LINE 89, DELETE AND INSERT AS FOLLOWS:

906.04 Rubber Type Gaskets. Ring gaskets for pipe shall be in accordance with AASHTO M ~~198~~ *315*, ~~type A~~. Material furnished under this specification shall be covered by a type B certification in accordance with 916.

SECTION 906, BEGIN LINE 93, DELETE AND INSERT AS FOLLOWS:

906.05 Bituminous Mastic Pipe Joint Sealer. This is a cold applied, mineral filled, joint sealing compound for joints of bell and spigot or tongue and groove concrete or clay pipe. ~~It shall be a steam refined petroleum asphalt, plasticized to a homogeneous consistency with mineral fillers.~~ *Joint sealing compound shall be in accordance with AASHTO M 198.*

(a) General Requirements. This sealer shall be a smooth uniform mixture, not thickened or livered, and shall show no separation which cannot be overcome easily by stirring. The material shall be of such consistency and proportions that it can be applied readily with a trowel, putty knife, or caulking gun without pulling or drawing. It shall exhibit good adhesive and cohesive properties when applied to metal, concrete, or vitrified clay surfaces. It shall not be damaged by exposure to below freezing temperatures and shall be applicable when the temperature of the air is between -7EC (20EF) and 38EC (100EF).

~~**(b) Detail Requirements.**~~

~~1. When applied in a layer 1 mm (1/16 in.) to 3 mm (1/8 in.) thick on a tinned metal panel and cured at room temperature for 24 h, the bituminous mastic pipe joint sealer shall set to a tough plastic coating free from blisters.~~

	Min.	Max.
~~2. Grease cone penetration unworked, 150 g, 25EC, 5 s., ASTM D 217, mm/10~~	~~125~~	~~225~~
~~3. Non Volatile, 10 g, 105E C-110EC, 24 h, %~~		~~75~~
~~4. Ash, by ignition, %~~	~~15~~	~~45~~
~~5. Flash Point (ASTM D 92), EC (EF)~~	~~(38)~~	~~100~~
~~6. Fire Point (ASTM D 92), EC (EF)~~	~~(66)~~	~~150~~

~~7. Cold Temperature Flexibility @ -12EC (10EF)Cshall not crack. Test: Trowel joint mastic approximately 6 mm (1/4 in.) thick on heavy kraft paper or very light gage sheet metal. Condition in a freezer at -12EC (10EF) for 3 h. Bend the sample over a 25 mm (1 in.) diameter pin or mandrel.~~

~~8. High Temperature Resistance @ 60EC (140EF), 10 hCno sag. Test: Trowel joint mastic approximately 12.5 mm (1/2 in.) thick on a porous concrete slab or piece of concrete block. Place in oven at 60EC (140EF) for 10 h.~~

~~(c)~~ *(b)* **Certification.** Material furnished under this specification shall be covered by a type C certification in accordance with 916.

906.05.1 Joint Membrane System for Precast Reinforced Concrete Box Sections. The Contractor may elect to use an approved self-adhering membrane system in lieu of the detail shown on the plans.

~~Approved~~ *Joint* membrane systems shall be in accordance with the following requirements.

PROPERTY	TEST METHOD	REQUIREMENT
Thickness	ASTM D 3767 Procedure A	1.5 mm Min.
Tensile Strength	Grab Tensile Strength, ASTM D 4632	650 N Min.
Elongation	Grab Tensile Strength, ASTM D 4632	20% Min.
Bursting Strength	Mullen Burst, ASTM D 3786	2.0 MPa Min.
Peel Strength	ASTM D 903	850 N/m Min.
Permeance	ASTM E 96, Water Method	60 ng/m^2 s Pa Max.

The membrane system shall be supplied in roll widths of at least 300 mm (12 in.). The membrane shall be a composite sheet material composed of a non-woven fabric and a polymer membrane material. The membrane shall be protected by a release paper. ~~The alternate membrane systems to be used shall be selected from the List of Approved Membrane Systems for Precast Reinforced Concrete Box Sections.~~

~~Requests for adding membrane systems to the approved list must be supported by a type B certification documenting compliance with the above requirements and a sample. The certification shall be prepared by the manufacturer in accordance with the applicable requirements of 916. No relabeled materials will be considered for approval. A specified material on the approved list will not be listed under more than one name.~~

~~When a product is determined to be acceptable, it will be added to the approved list and it may be used upon publication of the list.~~

Material furnished under this specification shall be covered by a type B certification in accordance with 916.
